

ABSTRACT

A copolymer thermoplastic natural foot orthosis for supporting and controlling the movement of a lower extremity and method for manufacturing the same. The orthosis is fabricated by forming a positive mold of the lower extremity, and modifying the positive mold in predetermined locations to accomplish the type of lower extremity control desired. A strip of heated thermoformable copolymer material is strategically positioned around predetermined locations on the positive mold for providing increased support for the natural foot orthosis at these predetermined locations. A sheet of heated thermoformable copolymer material is then drape mold around the positive mold and copolymer strip, wherein the copolymer sheet is vacuum sealed to conform to the shape of the positive mold. During the vacuum formation process, the copolymer sheet and copolymer strip combine together so that the copolymer sheet and copolymer strip are integrally formed into a single supporting structure. After the thermoformed copolymer sheet and strip have cooled, strategically positioned trimlines are made in the thermoformed copolymer sheet depending upon the lower extremity control desired, wherein all excess material outside of the trimlines is removed. Utilizing modifications to the positive mold and strategically positioned trimlines in conjunction with the reinforcing copolymer strip, a natural foot orthosis is achieved that is lighter, cosmetically superior, dynamic and durable.

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